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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/628,705	07/31/2000	Kishore K. Chakravorty	884.267US1	4964

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EXAMINER	
DINH, TUAN T	

ART UNIT	PAPER NUMBER
2841	

DATE MAILED: 10/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/628,705	CHAKRAVORTY, KISHORE K.	
	Examiner	Art Unit	
	Tuan T Dinh	2841	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 March 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) *9,15 and 19-30* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8,10-14 and 16-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *09/17/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's election with traverse of Specie I (figure 2, claims 1-8, 10-14, and 16-18) in the reply filed on March 31, 2003 is acknowledged. The traversal is on the ground(s) that (a) invention must be independent or distinct as claimed, and (b) there must be a serious burden on the examiner if restriction is required. This is not found persuasive because the application contains claims directed to the following patentability distinct species of the claimed invention. There are four of distinct species (species I-IV), each describes one of embodiment of the invention, and the searches for each of the species would be classified in different class or subsclass.

The requirement is still deemed proper and is therefore made FINAL. Claims 9, 15, and 19-30 are withdrawn from further consideration as being drawn to non-elected subject matter.

Specification

2. The disclosure is objected to because of the following informalities:

Applicant should provide the information of the continuation/division of a serial number of the application... disclosed in page 1, line 3.

Appropriate correction is required.

Claim Objections

3. Claim 2 is objected to because of the following informalities:

Claim 2, lines 3, "the third and fourth nodes" should be - - the third and fourth lands- - for proper antecedence basis--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-8 are rejected under 35 U.S.C. 102(e) as being anticipated by Farwooq et al. (U.S. Patent 6,072,690), the reference submitted by applicant.

Regarding claim 1, Farwooq et al. discloses an interposer (20), see figure 2A, column 3, line 13 to coupled a die (chip, column 3, line 25) to a substrate (chip carrier, column 3, line 28) comprising:

a capacitor (multiplayer capacitor) having first and second terminals (27, 28, column 3, line 18);

a first plurality of lands (29, column 3, line 24) on a first surface (a top surface) thereof, including a first land (29) coupled to the first terminal (27) and a second land (29) coupled to the second terminal (28); and

a second plurality of lands (30, column 3, line 27) on a second surface (a bottom surface) thereof, including a third land (30) coupled to the first terminal (27) and a fourth land (30) coupled to the second terminal (28).

Regarding claim 2, Farwooq et al. discloses the first and second lands (29) are positioned corresponding power supply nodes of the die (the power supply node of the chip is a bon pad located under between the chip and a solder ball, see figure 1), and the third and fourth lands (30) are positioned to be coupled to corresponding power supply nodes of the substrate (the power supply node of the substrate is a bon pad located under between the substrate and a solder ball, see figure 1).

Regarding claim 3, Farwooq et al. discloses the first and second lands (29) are coupled to the first and second terminals (27, 28), respectively, of the capacitor by a conductive path that comprises at least one via (24, column 3, line 20), and wherein the third and fourth lands (30) are coupled to the first and second terminals (27, 28), respectively, of the capacitor by a conductive path that comprises at least one additional via (26, column 3, line 20), see figure 2.

Regarding claim 4, Farwooq et al. discloses the at least one via (24) and the at least one additional via (26) are located at an interior region of the interposer (20), see figure 2.

Regarding claim 5, Farwooq et al. discloses the at least one via (24) and the at least one additional via (26) are located at a peripheral region of the interposer (20), see figure 2.

Regarding claims 6-7, Farwooq et al. discloses the capacitor comprises at least one or a plurality of high permittivity layer (the multiplayer capacitor is made by ceramic dielectric layers, column 3, lines 13-15).

Regarding claim 8, Don discloses the capacitor comprises a plurality of conductive layers interleaved with the high permittivity layers, such that altemating conductive layers are coupled to the first and second lands, respectively.

Regarding claim 10, Don discloses the first plurality of lands comprises a fifth land positioned to be coupled to a corresponding signal node of the die, and wherein the second plurality of lands comprises a sixth land positioned be coupled to a corresponding signal node of the substrate.

Regarding claim 11, Don discloses the fifth and sixth lands are coupled by a conductive path that comprises at least one via.

Regarding claim 12, Don discloses an electronic assembly comprising:

a die comprising first and second power supply nodes;

a substrate having third and fourth power supply nodes; and

an interposer coupling the die to the substrate and comprising:

a capacitor having first and second terminals;

a first plurality of lands on a first surface thereof, including a first land coupled to the first power supply node and the first terminal, and further including a second land coupled to the second power supply node and the second terminal; and

a second plurality of lands on a second surface thereof including a third land coupled to the third power supply node and the first terminal, and further including a fourth land coupled to the fourth power supply node and the second terminal.

Regarding claim 13, Don discloses the capacitor comprises a plurality of high permittivity layers

Regarding claim 14, Don discloses the capacitor comprises a plurality of conductive layers interleaved with the high permittivity layers, such that alternating conductive layers are coupled to the first and second lands, respectively.

As to claim 16, Don discloses an electronic system comprising an electronic assembly comprising:

a die comprising first and second power supply nodes;

a substrate having third and fourth power supply nodes; and

an interposer coupling the die to the substrate and comprising:

a capacitor having first and second terminals;

a first plurality of lands on a first surface thereof including a first land coupled to the first power supply node and the first terminal, and further including a second land coupled to the second power supply node and the second terminal; and a second plurality of lands on a second surface thereof, including a third land coupled to the third power supply node and the first terminal, and further including a fourth land coupled to the fourth power supply node and the second terminal.

As to claim 17, Don discloses the capacitor comprises a plurality of high permittivity layers.

As to claim 18, Don discloses the capacitor comprises a plurality of conductive layers interleaved with the high permittivity layers, such that alternating conductive layers are coupled to the first and second lands, respectively.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan T Dinh whose telephone number is 571-272-1929. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kammie Cuneo can be reached on 571-272-1957. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tuan Dinh
September 17, 2004.

KAMAND CUNEO
SUPERVISORY PATENT EXAMINER
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